CLAIMS

What is claimed is:

1. An apparatus comprising:

a pulse laser to generate a pulse train; and

a modulator to receive the pulse train and a data signal, said modulator to encode the data signal onto the pulse train by selectively passing pulses.

2. The apparatus of claim 1 wherein the pulse laser is mode-locked to a particular pulse frequency equal to a data rate of the data signal.

3. The apparatus of claim 1 wherein the pulse laser is mode-locked to a particular duty ratio of light-to-no-light per pulse cycle.

4. The apparatus of claim 3 wherein the duty ratio comprises 1 to 100.

5. The apparatus of claim 1 wherein the modulator comprises one of a Mach-Zhender interferometer or a variable optical attenuator.

6. The apparatus of claim 1 further comprising:

a light conductor to direct the pulse train from the pulse laser to the modulator.

7. The apparatus of claim 6 wherein the light conductor comprises at least one of a waveguide or an optical fiber.

8. The apparatus of claim 1 wherein:

the modulator comprises one of a plurality of modulators, each of the plurality of modulators to separately receive the pulse train and a separate data signal, and to encode the separate data signal onto the pulse train by selectively passing pulses.

9. The apparatus of claim 8 further comprising:

a waveguide splitter to direct the pulse train from the pulse laser to the plurality of modulators.

10. The apparatus of claim 1 wherein:

the pulse laser comprises one of a plurality of pulse lasers, each of the plurality of pulse lasers to generate a separate pulse train; and

the modulator comprises one of a plurality of modulators, each of the plurality of modulators to receive one of the separate pulse trains and a separate data signal, and to encode the separate data signal onto the respective separate pulse train by selectively passing pulses.

11. The apparatus of claim 1 further comprising:

a photodetector to receive the modulated pulse train from the modulator and convert the modulated pulse train to a modulated electrical current; and

a receiver to convert the modulated electrical current back into the data signal.

12. The apparatus of claim 11 wherein the modulator comprises a first chip and the photodetector and the receiver comprise a second chip.

13. The apparatus of claim 11 wherein the modulator, the photodetector, and the receiver comprise a chip.

14. A system comprising:

a pulse laser to generate a pulse train;

a first chip to receive the pulse train and a data signal, and to modulate the data signal onto the pulse train by selectively passing pulses; and

a second chip to receive the modulated pulse train from the first chip, convert the modulated pulse train to a modulated electrical current, and convert the modulated electrical current back into the data signal.

15. The system of claim 14 further comprising:

a light conductor to direct the modulated pulse train from the first chip to the second chip.

16. The system of claim 14 wherein:

the first chip comprises a plurality of modulators, each of the plurality of modulators to separately receive the pulse train and a separate data signal, and to encode the separate data signal onto the pulse train by selectively passing pulses.

17. The system of claim 16 further comprising:

a waveguide splitter to direct the pulse train from the pulse laser to the plurality of modulators.

18. The system of claim 14 wherein the pulse laser is integrated into the first chip, and wherein:

the pulse laser comprises one of a plurality of pulse lasers integrated into the first chip, each of the plurality of pulse lasers to generate a separate pulse train; and

the first chip comprises a plurality of modulators, each of the plurality of modulators to receive one of the separate pulse trains and a separate data signal, and to encode the separate data signal onto the respective separate pulse train by selectively passing pulses.

19. A method comprising:

generating an optical pulse train;

receiving a data signal; and

modulating the optical pulse train to encode the data signal onto the pulse train by selectively passing pulses.

20. The method of claim 19 further comprising:

tuning a data frequency of the data signal to be equal to a pulse frequency of the optical pulse train.